

# Osage-Gasconade Counties Adult Treatment Court *4-Track Model Program and Cost Evaluation Report*

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# Osage-Gasconade Counties Adult Treatment Court Missouri

## *4-Track Model Program and Cost Evaluation Report*

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to enrich people's lives*

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## BACKGROUND

**D**rug courts are designed to guide offenders identified as having a substance use disorder into treatment that will support recovery and improve the quality of life for the offenders and their families. Benefits to society include substantial reductions in crime and decreased drug use, resulting in reduced costs to taxpayers and increased public safety.

In the typical drug court program, participants are closely supervised by a judge who is supported by a team of agency representatives operating outside of their traditional roles. The team typically includes a treatment court administrator, case managers, substance use treatment providers, prosecuting attorneys, defense attorneys, law enforcement officers, and parole and probation officers who work together to provide needed services to drug court participants. Prosecuting and defense attorneys modify their traditional adversarial roles to support the treatment and supervision needs of program participants. Drug court programs blend the resources, expertise and interests of a variety of jurisdictions and agencies.

Drug courts have been shown to be effective in reducing criminal recidivism (GAO, 2005), improving the psycho-social functioning of offenders (Kralstein, 2010), and reducing taxpayer costs due to positive outcomes for drug court participants (including fewer re-arrests, less time in jail and less time in prison) (Carey & Finigan, 2004; Carey, Finigan, Waller, Lucas, & Crumpton, 2005). Some drug courts have been shown to cost less to operate than processing offenders through business-as-usual in the court system (Carey & Finigan, 2004; Carey et al., 2005).

More recently, research has focused not just on *whether* drug courts work but *how* they work, and *who* they work best for. Research based best practices have been developed (e.g., Volume I of NADCP's Best Practice Standards was published in 2013 and Volume II in July 2015). These Best Practice Standards present multiple research-based practices that have been associated with significant reductions in recidivism or significant increases in cost savings or both. The Standards also describe the research that illustrates for whom the traditional drug court model works best, specifically, high-risk/high-need individuals. The Standards recommends that drug court programs either limit their population to high-risk/high-need individuals, or develop different tracks for participants at different risk and need levels (i.e., follow a risk-need responsivity model). That is, drug courts should assess individuals at intake to determine the appropriate services and supervision level based on their assessment results (e.g., Andrews, Bonta, & Wormith, 2006; Lowenkamp & Latessa, 2005). In addition, the populations of participants at different risk and need levels should not mix as the research further shows that mixing leads to worse outcomes. Specifically, mixing low-risk individuals with high-risk individuals generally results in the low-risk becoming high-risk, and providing high intensity treatment for individuals with low needs not only wastes resources, but can result in these low-need individuals becoming high-need or otherwise creating unnecessary challenges in their lives. This research has led to the development of more sophisticated drug court programs, including programs that have implemented multiple tracks for their participants based on the four "quadrants" of risk and need (high-risk/high-need, high-risk/low-need, low-risk/high-need, and low-risk/low-need). The first known programs to implement all four tracks, or quadrants, were the drug courts in Greene County and the City of St. Louis, Missouri, followed shortly after by Jackson County, where the judicial officers/commissioners and coordinators worked



with their teams and with community organizations to develop appropriate supervision, treatment and other complementary services for participants at each risk and need level.

In October 2014, the Office of State Courts Administrator (OSCA) in Missouri, in partnership with NPC Research, received a grant from the Bureau of Justice Assistance, to perform process, outcome and cost evaluations of two drug courts operating in Missouri that are using the 4-track model and to assist in the expansion of this model into four additional Missouri drug courts. The Missouri Drug Courts Coordinating Commission (DCCC) was interested in the costs associated with implementing this model and subsequently contracted with NPC to evaluate the costs and potential benefits in two of the expansion sites, Boone and Osage-Gasconade counties.

All programs are using a specialized screening tool, the Risk and Needs Triage (RANT®), a scientifically validated screening tool developed by the Treatment Research Institute (TRI), to place offenders in one of the four risk-need “quadrants” (See Table 1). The programs have separate treatment and supervision requirements according to participants’ risk and need levels. The 4-track model implemented in these sites is an effort to tailor the treatment court programs to the risk and needs of participants in each quadrant with the expectation that this will improve effectiveness and be more cost and resource efficient. The evaluation in these four sites is intended to determine whether this expectation is accurate. That is, the study across these four sites (Greene, Jackson, Boone and Osage-Gasconade counties) is designed to answer the question, does implementing separate tracks based on participant risk and need in treatment courts actually result in more efficient use of program resources and in improved participant outcomes?

**Table 1. The Risk and Need Quadrants**

	<b>High-Risk (HR)</b>	<b>Low-Risk (LR)</b>
<b>High-Need (HN)</b>	Quadrant 1 (Q1) high-risk/high-need	Quadrant 2 (Q2) low-risk/high-need
<b>Low-Need (LN)</b>	Quadrant 3 (Q3) high-risk/low-need	Quadrant 4 (Q4) low-risk/low-need

This report contains the study results specifically for the Osage-Gasconade Counties Adult Treatment Court (OGCATC). A summary of the study results across all four study sites is available at [www.npcresearch.com](http://www.npcresearch.com) under “Reports and Publications.” This report includes the specific evaluation methods used, a brief description of the 4-track treatment court program, and the short-term outcome and program cost results for the Osage-Gasconade Counties Adult Treatment Court.

### **Evaluation Design and Methods<sup>1</sup>**

OSCA encouraged the implementation of the four tracks in the expansion sites as an approach to enhance the operational effectiveness of Missouri’s adult treatment court programs to improve the quality of court supervision and treatment services on treatment court participants. The main purpose

<sup>1</sup> Statistical analysis methods are included as Appendix A.



of the study in the Osage-Gasconade Counties Adult Treatment Court was to determine if the implementation of the 4-track model resulted in a more efficient use of program resources. Therefore, the study design focused on a cost analysis and cost comparison of how the program operated pre- and post-implementation of the 4-track model.

Specifically, the evaluation was designed to address the following study questions:

1. Did the program operate differently before and after the implementation of the 4-track model?
  - a) Did the program requirements and provision of services change from pre-implementation to post implementation?
  - b) Did the program provide services differently in the different quadrants?
2. Did graduation rates differ before and after 4-track implementation?
3. What were the costs of program participation before and after implementing the 4-track model?
4. Were there any cost efficiencies due to the implementation of the 4-track model? That is, did the program cost per participant decrease after 4-track implementation?

NPC selected a sample of participants pre-4-track implementation and a sample post-4-track implementation and tracked the participants in both groups in administrative datasets to determine the program requirements and services received. NPC performed interviews with treatment court team members at two time points, once pre-implementation and once post-implementation, to learn about how each team member spent their treatment court related time including treatment court activities and time spent on each activity.

The cost approach used by NPC Research is called Transactional and Institutional Cost Analysis (TICA). The TICA approach views an individual's interaction with publicly funded agencies as a set of transactions in which the individual utilizes resources contributed from multiple agencies. Transactions are those points within a system where resources are consumed and/or change hands. In the case of drug courts, when a drug court participant appears in court or has a drug test, resources such as judge time, defense attorney time, court facilities, and urine cups are used. Court appearances and drug tests are transactions. In addition, the TICA approach recognizes that these transactions take place within multiple organizations and institutions that work together to create the program of interest. These organizations and institutions contribute to the cost of each transaction that occurs for program participants. TICA is an intuitively appropriate approach to conducting costs assessment in an environment such as a drug court, which involves complex interactions among multiple taxpayer-funded organizations.

In order to maximize the study's benefit to policymakers, a "cost-to-taxpayer" approach was used for this evaluation. This focus helps define which cost data should be collected (costs and avoided costs involving public funds) and which cost data should be omitted from the analyses (e.g., costs to the individual participating in the program).

The central core of the cost-to-taxpayer approach in calculating benefits (avoided costs) for drug courts specifically is the fact that untreated substance use disorders will cost tax dollar-funded systems money



that could be avoided or diminished if substance use disorders were treated. In this approach, any cost that is the result of untreated substance use disorders and that directly impacts a citizen (through tax-related expenditures) is used in calculating the benefits of substance use treatment.

Finally, NPC's cost approach looks at publicly funded costs as "opportunity resources." The concept of opportunity cost from the economic literature suggests that system resources are available to be used in other contexts if they are not spent on a particular transaction. The term opportunity resource describes these resources that are now available for different use. For example, if substance use treatment reduces the number of times that a client is subsequently incarcerated, the local sheriff may see no change in his or her budget, but an opportunity resource will be available to the sheriff in the form of a jail bed that can now be filled by another person, who, perhaps, possesses a more serious criminal justice record than does the individual who has received treatment and successfully avoided subsequent incarceration. Therefore, any "cost savings" reported in this evaluation may not be in the form of actual monetary amounts, but may be available in the form of a resource (such as a jail bed, or a police officer's time) that is available for other uses.

The cost evaluation involved calculating the costs of the program at two time points, before and after 4-track implementation. To determine if there were any benefits (or avoided costs) due to program participation, costs pre- and post-implementation were compared. Only participants who exited the program were included in program costs, as those who are active are still using program resources.

### **SAMPLE/COHORT SELECTION**

The Osage-Gasconade treatment court implemented the 4-track model in 2015, with the four tracks fully operational by June of that year. The pre-4-track implementation sample selected for the study was the population of individuals who entered the program from May 2012 to October 2014 ( $N = 14$ ). The post-4-track implementation sample was the population of individuals who entered the program from July 2015 to June 2017 ( $N = 14$ ). This study uses an intent-to-treat design so all participants who entered the program, regardless of status at exit (graduated or unsuccessfully discharged), are included in the analysis.

## DATA COLLECTION AND SOURCES

### *Administrative Data*

The data necessary for the evaluation were gathered from administrative databases as described in Table 2. The table lists the type of data needed and the source of these data.

**Table 2. Osage-Gasconade County Treatment Court Data and Sources**

<b>Data</b>	<b>Source</b>
<p><b><i>Treatment Court Program Data</i></b>  <i>Examples:</i></p> <ul style="list-style-type: none"> <li>• Participant demographics</li> <li>• Program start and end dates</li> <li>• Phase dates</li> <li>• Exit Status</li> <li>• Sanctions and Incentives</li> </ul>	Judicial Information System (JIS)
<p><b><i>Traditional Court Data</i></b></p> <ul style="list-style-type: none"> <li>• Dates of case filings</li> <li>• Charges</li> <li>• Convictions</li> </ul>	Judicial Information System (JIS)
<p><b><i>Incarceration Data</i></b></p> <ul style="list-style-type: none"> <li>• Jail sanctions</li> </ul>	Judicial Information System (JIS)
<p><b><i>Drug Testing</i></b></p> <ul style="list-style-type: none"> <li>• Dates of drug tests</li> <li>• Results of drug tests</li> </ul>	Redwood Toxicology Laboratory and TOMO (Drug Testing Collection Agency)
<p><b><i>Treatment</i></b></p> <ul style="list-style-type: none"> <li>• Entry and exit dates of treatment received</li> <li>• Treatment modality</li> <li>• Units of service</li> </ul>	Missouri Alcohol Drug Assessment Consultants Inc. (MADAC)

**Cost Data**

The TICA methodology is based upon six distinct steps. Table 3 lists each of these steps and the tasks involved.

**Table 3. The Six Steps of TICA**

	Description	Tasks
Step 1:	Determine flow/process (i.e., how program participants move through the system).	Site visits/direct observations of program practice. Interviews with key informants (agency and program staff) using a drug court typology and cost guide.
Step 2:	Identify the transactions that occur within this flow (i.e., where clients interact with the system).	Analysis of process information gained in Step 1.
Step 3:	Identify the agencies involved in each transaction (e.g., court, treatment, police).	Analysis of process information gained in Step 1. Direct observation of program transactions.
Step 4:	Determine the resources used by each agency for each transaction (e.g., amount of judge time per transaction, amount of attorney time per transaction, number of transactions).	Interviews with key program informants using program typology and cost guide. Direct observation of program transactions. Administrative data collection of number of transactions (e.g., number of treatment sessions, number of drug tests).
Step 5:	Determine the cost of the resources used by each agency for each transaction.	Interviews with budget and finance officers. Review of websites, agency budgets and other financial paperwork.
Step 6:	Calculate cost results (e.g., cost per transaction, total cost of the program per participant).	Indirect support and overhead costs (as a percentage of direct costs) are added to the direct costs of each transaction to determine the cost per transaction. The transaction cost is multiplied by the average number of transactions to determine the total average cost per transaction type. These total average costs per transaction type are added to determine the program costs.

Step 1 (determining program process) was performed during site visits by OSCA staff, through analysis of program documents, and through interviews with key informants. Step 2 (identifying program transactions) and Step 3 (identifying the agencies involved with transactions) were performed through observation during site visits and by analyzing the information gathered in Step 1. Step 4 (determining the resources used) was performed through extensive interviewing of key informants, direct observation during a site visits, and by collecting administrative data from the agencies involved in the program. Step 5 (determining the cost of the resources) was performed through interviews with program and non-program staff and with agency financial officers, as well as analysis of budgets found online or provided

by agencies. Finally, Step 6 (calculating cost results) involved calculating the cost of each transaction and multiplying this cost by the number of transactions. For example, to calculate the cost of drug testing, the unit cost per drug test is multiplied by the average number of drug tests performed per person. All the transactional costs for each individual were added to determine the overall cost per program participant/comparison group individual. This was reported as an average cost per person for the program. In addition, due to the nature of the TICA approach, it is also possible to calculate the cost of the treatment court process per agency, to determine which agencies contributed the most resources to the program and which agencies gained the most benefit.



## RESULTS

**T**his section includes brief background information about the Osage-Gasconade Adult Treatment Court and then a summary of the key results and recommendations. The section following this summary provides the detailed outcome and cost results.

The Osage-Gasconade Counties Adult Treatment Court (OGCATC) was established in July 2009 to address the substance use disorders and the associated lifestyle of felony offenders by providing a structured program designed to hold the offenders accountable, help the offenders gain control over their substance use disorder, and assure that they develop responsible living skills. The goals of the OGCATC are to determine the best options for treatment and supervision for each participant that will optimize outcomes at the least cost to taxpayers and with the least threat to public safety, stop the revolving door of incarceration and criminal activity, and to return offenders to their families and the community as productive citizens. In July 2012 the OGCATC began using the RANT to determine participant risk and needs and in June 2015, the OGCATC began to place participants into tracks based on RANT prognostic risk and criminogenic need scores with the objective to use resources more efficiently by targeting the specific risks and needs of the participants. As of November 2017 there were 28 participants with RANT scores, 14 pre-4-track implementation and 14 post-4-track implementation.

### Process Evaluation Summary

From the site visit observation, team member interviews and participant focus groups, it was determined that overall, the OGCATC follows many of the essential guidelines and best practices within the 10 Key Components of Drug Courts.<sup>2</sup> These include the following practices:

- Good stability among team members
- Excellent team member communication
- Regular email communication
- The use of standardized staffing sheets
- Eligibility criteria includes participants with a wide range of charges
- Once they have entered the program, participants are connected with treatment services swiftly
- A validated tool is used to assess for risk and need levels and has developed a 4-track model that separates participants by quadrant in court and in treatment
- Eligibility requirements are written and included in the policy and procedure manual
- The program accepts and provides services for offenders with mental health issues and intellectual disabilities
- Program length is a minimum of 18 months, and has at least 3 phases
- An array of treatment services is provided based on individual participants' assessed needs and uses evidence-based programming

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<sup>2</sup> The full process evaluation report can be found at <http://npresearch.com/wp-content/uploads/Osage-Gasconade-Adult-Treatment-Court-Process-Evaluation.pdf>



- Relapse prevention education is provided while participants are active in the program and continuing care options following graduation
- Treatment is coordinated through a single agency
- Drug testing occurs at least twice per week
- Rapid results from drug testing
- Sanctions are imposed swiftly after non-compliant behavior
- Guidelines on program responses to participant behavior with a printed copy given to each team member
- The team consistently takes into account participant risk and need level, and proximal and distal behaviors in determining a response to participant behaviors
- Jail is used sparingly
- In order to graduate, participants must have a sober housing environment
- The judge participates in regular training to stay abreast of the latest research as well as training others
- The judge is respectful, fair, attentive, and caring in his interactions with the participants in court
- The judge consistently spends greater than 3 minutes with each participant
- The program collects electronic data and reviews their data regularly as a part of self-monitoring
- Team members receive ongoing training
- Outreach is performed by inviting representatives of the local government, community members and staff from other agencies to program graduations

Although this program was functioning well, there were some primary areas of program improvement suggested by OSCA that arose in the staff interviews, participant focus groups and observations during the site visit.

- Ensure a representative from all key agencies, including the prosecutor's office and a defense counsel representative, attend staffing and court sessions
- Add a law enforcement representative on the team
- Establish a MOU with all team members
- Decrease the length of time from arrest to program entry
- Explain the reasons for rewards and sanctions in court and be aware of the importance of appearing fair
- Analyze exits for participants and evaluate program to look for areas of improvement in the graduation rate
- Establish an advisory committee
- Update a written memorandum of understanding with the community partners to establish the roles and responsibilities of the partnership members



#### 4-Track Implementation

The OGCATC began implementing the 4-track model in June 2015. RANT scores were used to place participant in four different quadrants as described earlier in this report (see Table 1). The participants in each quadrant are placed in different tracks and have different requirements designed to match the participants' risks and needs. Table 4 provides a summary of the key requirements for each track. This table demonstrates the OGCATC did plan program requirements and service provision to match the risk and need levels of the participants that fell in each quadrant.

**Table 4. Quadrant/Track Requirements**

Quadrant ("Q")	Staffing Requirements	Court Requirements	Probation/Supervision Requirements	Treatment Requirements	Other Requirements
<b>Q1 (HR/HN)</b>	1x/week	<ul style="list-style-type: none"> <li>• 1x/week in Phase 1</li> <li>• 2x/month in Phase 2</li> <li>• 1x/month in Phases 3, 4 &amp; 5</li> </ul>	<ul style="list-style-type: none"> <li>• 2x/week in Phase 1</li> <li>• 1x/week in Phase 2</li> <li>• 2x/month in Phase 3</li> <li>• 1x/month in Phase 4</li> <li>• Call-in/as needed in Phase 5</li> </ul>	<ul style="list-style-type: none"> <li>• Assessments in Phase 1</li> <li>• Individualized based on assessed level of care</li> </ul>	<ul style="list-style-type: none"> <li>• Support group 1x/week in Phase 1</li> <li>• Support groups 2x/week in Phase 2; Obtain sponsor</li> <li>• Support groups 3x/week in Phase 3 &amp; 4</li> <li>• Support groups ongoing in Phase 5</li> </ul>
<b>Q2 (LR/HN)</b>	1x/month, then reduced to every 5th Tuesday	<ul style="list-style-type: none"> <li>• 1x/month in Phase 1 &amp; 2</li> <li>• Every 5th Tuesday in Phase 3, 4 &amp; 5.</li> </ul>	<ul style="list-style-type: none"> <li>• 1x/week in Phase 1 &amp; 2</li> <li>• 2x/month in Phase 3</li> <li>• 1x/month in Phase 4 &amp; 5</li> </ul>	<ul style="list-style-type: none"> <li>• Assessments in Phase 1</li> <li>• Individualized based on assessed level of care</li> </ul>	<ul style="list-style-type: none"> <li>• Support group 1x/week in Phase 1</li> <li>• Support groups 2x/week in Phase 2; obtain sponsor</li> <li>• Support groups 3x/week in Phase 3 &amp; 4</li> <li>• Support groups ongoing in Phase 5</li> </ul>
<b>Q3 (HR/LN)</b>	2x/month, then gradually reduced	<ul style="list-style-type: none"> <li>• 2x per month in Phase 1 &amp; 2.</li> <li>• 1x per month in Phase 3 &amp; 4.</li> <li>• Single court appearance in Phase 5</li> </ul>	<ul style="list-style-type: none"> <li>• 2x/week in Phase 1</li> <li>• 1x/week in Phase 2</li> <li>• 2x/month in Phase 3</li> <li>• 1x/month in Phase 4</li> <li>• Call-in/as needed in Phase 5.</li> </ul>	<ul style="list-style-type: none"> <li>• Assessments in Phase 1, no formal substance use treatment</li> <li>• Individualized based on assessed level of care</li> </ul>	No support groups, only pro-social activities
<b>Q4 (LR/LN)</b>	1x/month, then quickly reduced.	<ul style="list-style-type: none"> <li>• 1x/month in Phase 1</li> <li>• Every 5th Tuesday in Phase 2</li> <li>• Noncompliance /as needed in Phase 3</li> </ul>	<ul style="list-style-type: none"> <li>• 1x/week in Phase 1</li> <li>• 2x/month in Phase 2</li> <li>• 1x/month in Phase 3</li> </ul>	<ul style="list-style-type: none"> <li>• Assessments in Phase 1, no formal substance use treatment.</li> <li>• Individualized based on assessed level of care</li> </ul>	No support groups, 20 community service hours in Phase 2 & 3



## Outcome and Cost Evaluation Results

Between May 2012 and June 2017, the OGATC served a total of 28 participants. Between May 2012 and December 2014, the program served 14 participants (the pre-4-track implementation group) and between July 2015 and June 2016, the program served another 14 participants. Prior to the implementation of the 4-track model, 100% of the participants screened with the RANT scored as high-risk/high-need. After the implementation of the 4-track model, the OGATC accepted participants with other risk/need levels, although the majority (11 of the 14 participants) were still high-risk/high-need. Table 5 shows the number of OGATC participants by quadrant before and after the 4-track implementation.

**Table 5. OGATC Participant Characteristics Pre- and Post-4-Track Implementation**

Quadrant	Pre-4-Track N (%)	Post-4-Track N (%)
1: High-Risk/High-Need	14 (100%)	11 (79%)
2: Low-Risk/High-Need	0 (0%)	2 (14%)
3: High-Risk/Low-Need	0 (0%)	0 (0%)
4: Low-Risk/Low-Need	0 (0%)	1 (7%)
<b>Total</b>	<b>14 (100%)</b>	<b>14 (100%)</b>

After the implementation of the 4-track model, the demographics of the participant population shifted slightly. The proportion of men in the program decreased from 86% to 43%;<sup>3</sup> however, all participants in both time periods were White. There were no differences in age before or after 4-track implementation. There were not enough participants in Quadrants 2 through 4 to compare differences by track therefore, no demographic information for the OGATC program participants will be presented by quadrant. Table 6 illustrates the demographic characteristics of OGATC participants before and after the 4-track implementation.

**Table 6. OGATC Participant Characteristics Pre- and Post-4-Track Implementation: Demographics**

	Pre-4-Track N = 14	Post-4-Track N = 14
<b>Gender</b>		
Male	12 (86%)*	6 (43%)*
Female	2 (14%)	8 (57%)
<b>Race/Ethnicity</b>		
White	14 (100%)	14 (100%)
<b>Age at Entry Date</b>		
Average age in years	29.7 years	28.6 years
Range	18 to 54	19 to 47

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

<sup>3</sup> Two by two chi-square comparing participant gender and 4-track implementation status:  $\chi^2(1, N = 28) = 5.60, p < .05$ .

In addition to demographic characteristics, analyses also examined whether there were any differences in other background characteristics between the two cohorts of OGATC participants. As illustrated in Table 7, the large majority (over 70%) of all OGATC participants were single, never married, about half had a high school diploma, half were unemployed, and more than half were living in unstable housing situations at the time of program entry. Although not significantly different from pre-4-track participants (probably due to small sample sizes), post-4-track participants had higher levels of education, higher rates of unemployment, and higher housing needs.

**Table 7. OGATC Participant Characteristics Pre- and Post-4-Track Implementation: Background**

	Pre-4-Track N = 14	Post-4-Track N = 14
<b>Marital Status at Entry</b>		
Single, never married	10 (71%)	12 (86%)
Divorced/separated	2 (14%)	1 (7%)
Married	2 (14%)	1 (7%)
<b>Highest Education Attained at Entry</b>		
No High School Diploma	4 (29%)	1 (9%)
High School Diploma	8 (57%)	5 (46%)
Any Post-Secondary	2 (14%)	5 (46%)
<b>Employment Status at Entry<sup>a</sup></b>		
Unemployed	7 (50%)	8 (57%)
Employed Full Time	5 (36%)	3 (21%)
Employed Part Time	1 (7%)	3 (21%)
Full time student, disabled, or unable to work	1 (7%)	0 (0%)
<b>Housing Status at Entry</b>		
Rent or own home	6 (43%)	4 (29%)
Unstably housed <sup>b</sup>	8 (57%)	10 (71%)

OGATC program staff members tracked the primary substances used by their program participants. Prior to the 4-track implementation, 29% of participants reported that their primary substance used was opioids and 21% reported that marijuana was their primary substance. Twenty-nine percent of participants reported no primary substance. After 4-track implementation, the rates of reported primary substances did not vary significantly, although there was a slight increase in amphetamine use and every participant reported at least one primary substance. Table 8 shows the number and percent of OGATC participants and their reported primary substances used.

**Table 8. OGATC Participant Characteristics Pre- and Post-4-Track Implementation: Primary Substance Used**

Primary Substance Used	Pre-4-Track N = 14	Post-4-Track N = 14
None	4 (29%)	0 (0%)
Marijuana	3 (21%)	3 (21%)
Alcohol	1 (7%)	3 (21%)
Opioids	4 (29%)	3 (21%)
Amphetamines	2 (14%)	5 (36%)

In terms of criminal history, the OGATC participants entering the program after 4-track implementation had fewer arrests in the 2 years prior to program entry, compared to the pre-implementation group (not statistically significant). The high-risk/high-need group in the post-implementation period looked similar to the pre group (both groups had about two arrests), but the participants in Quadrant 2 and 4 (both low-risk tracks) had 1 arrest or less in the 2 years prior to entry. Notably, participants in Quadrant 1 of the post 4-track implementation group had a higher number of drug arrests (1.55 compared to 0.85) and fewer property arrests (0.18 compared to 0.85) than the pre-implementation group (not significant). Table 9 shows the criminal history for the OGATC participants pre and post implementation of the 4 tracks.

**Table 9. OGATC Participant Characteristics Pre- and Post-4-Track Implementation: Criminal History**

Average Number of Arrests 2 Years Prior to Program Entry	Pre-4-Track Q1: HR/HN N = 14	Post-4-Track	
		Q1: HR/HN n = 11	All Post n = 14
Any Arrest Type	2.38	2.18	1.86
Person Arrests	0.08	0.36	0.29
Property Arrests	0.85	0.18	0.14
Drug Arrests	1.15	1.55	1.36
Other Arrests	0.39	0.18	0.14
Misdemeanor Arrests	1.15	1.55	1.29
Felony Arrests	1.62	1.45	1.29

*Note.* Quadrants with fewer than seven participants were suppressed due to sample sizes too small for valid analyses and to protect the confidentiality of the individuals. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

## STUDY QUESTION #1: DID THE PROGRAM OPERATE DIFFERENTLY BEFORE AND AFTER THE IMPLEMENTATION OF THE 4-TRACK MODEL?

**1a. Did the program requirements and provision of services change from pre-implementation to post implementation?)**

**1b. Did the program provide different services for the different quadrants?**

Analyses were conducted to compare the average number of program events individuals participated in before and after 4-track implementation. Due to the small number of participants admitted into Quadrants 2 through 4, an analysis of the 4-track model is difficult and the services provided to those few participants may not be representative of the services that would generally be provided to all individuals in that quadrant.

On average, all participants pre- and post-4-track implementation spent about 1 year in the program. Participants in the post-implementation group attended fewer court appearances than the pre-implementation group (23 compared to 30), in large part due to the small number of sessions attended by participants in Quadrants 2 and 4 (the low-risk quadrants). Participants in Quadrant 1 in the post-implementation group had a similar number of drug tests as participants in the pre-group (38 drug tests compared to 41 drug tests), however participants in Quadrants 2 and 4 (the low-needs tracks) were tested between 1-2 times throughout their stay in the program (according to program information, which was incomplete for some participants). Finally, participants in Quadrant 1 in the post-implementation group had a higher number of jail sanction days (23 days compared to 14 days), compared to the pre-implementation group, although this difference was not statistically significant (probably due to small sample size). Participants in Quadrants 2 and 4 in the post-implementation group had little to no jail sanctions. Table 10 shows the average number of program events per person, by 4-track implementation status and quadrant.

**Table 10. OGATC Program Characteristics Pre- and Post-4-Track Implementation**

Program Requirements/Events	Pre-4-Track Q1: HR/HN N=13	Post-4-Track				
		Q1 n=7	Q2 n=1	Q3 n=0	Q4 n=1	Total n=9
Program Length of Stay (mean)	354 days	342	553 Days	--	295 days	360 days
Program Length of Stay (median)	315 days	days	553 days	--	295 days	295 days
Court Appearances	30.2	241	16.0	--	6.0	23.2
Drug Tests <sup>a</sup>	40.7	days	2.0	--	1.0	29.1
Jail Sanctions (days)	14.2	26.7	0.0	--	1.0	18.2
		38.3				
		23.3				

*Note.* Includes only participants who are no longer active in the program (i.e., participants who have been terminated or graduated; no active participants). All pre-implementation participants were in Quadrant 1, so the other three Quadrants have no participants. <sup>a</sup> Three people from the pre- group and one person from the post-implementation group were missing information about drug tests. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Although the findings presented in Table 10 are not necessarily representative of what might occur for this program if they had a larger caseload, these findings are fairly consistent with a correctly implemented 4-track



model. Low-risk/low-need participants (Quadrant 4) would be expected to take less time in the program and may not need to be drug tested as often, while participants with high needs (Quadrants 1 and 2) would need longer to complete program requirements while they are working on recovery from their substance use disorder. However, high-need individuals should be taking drug tests frequently (to monitor their use and be able to respond appropriately) and it appears that the one person in Quadrant 2 was not tested frequently.

In terms of treatment services, although not statistically significantly different (most likely due to small sample sizes), there does appear to be a shift in the type of treatment used from pre- to post-track implementation, as well as by quadrant. For participants in Quadrant 1, the average number of hours of group counseling decreased from 58 hours to 34 hours after 4-track implementation (the number of individual counseling hours did not change). Quadrant 1 participants also attended more group education sessions (e.g., moral reconnection therapy or MRT®) in the post-implementation cohort, compared to the Quadrant in the pre-implementation group. Overall, participants in Quadrants 2 and 4 (the low-risk quadrants) attended very few treatment sessions, with an average of about 6.5 hours across the two participants in those quadrants. The average number of treatment services received per participant is displayed in Table 11. These findings are not necessarily consistent with the 4-track model. The high-needs participants would be expected to continue to receive high levels of treatment, so the decrease in treatment hours implies that those individuals may not be receiving needed treatment. However, the MRT (as a criminal thinking curriculum) received by Quadrant 1 after 4-track implementation is appropriate for those high-risk participants.

**Table 11. Treatment Services: Average per Participant by Quadrant Pre- and Post-4-Track Implementation**

Treatment Services (Units)	Pre-4-Track Q1: HR/HN N=13	Q1 n=7	Total N=9
Assessment	0.3	0.1	0.2
Group Counseling (hours)	57.9	34.1	26.5
Individual Counseling (hours)	23.2	21.7	18.3
Education Groups (hours)	1.9	14.6	11.4
Medication Services (hours)	< 0.1	0.0	0.0
Family Therapy (hours)	0.3	0.0	0.0

## **STUDY QUESTION #2: DID GRADUATION RATES DIFFER BEFORE AND AFTER 4-TRACK IMPLEMENTATION?**

Theoretically, adjusting program requirements and providing services based on assessed risk and needs should result in higher rates of successful program completion. Since the minimum amount of time to complete the OGATC is 18 months, only participants who entered the program prior to February 1, 2016 (1.5 years before data extraction) were included in the *overall* graduation rates. Pre-track graduation rate is 46% or six graduates out of 13 participants with complete status information. Post-4-track graduation rate is 60% or three out of five participants with complete status information and entering at least 18 months prior to data extraction. The graduation rate for all participants pre-4-track implementation was 46% compared with 60% post-implementation, which was not significantly different (probably due to the small sample sizes), but is promising.

The average length of time spent in the program by graduates did not vary substantially across the two post-implementation quadrants. On average, graduates spent about 1.6 years in the program, which indicates the program is graduating participants in the intended time period. Table 12 shows the percent of participants by graduation stats (as of October 2017) for all participants in the sample, including those who have not had time to graduate yet, and the average number of days spent in the program by 4-track implementation status.

**Table 12. Graduation Rates by 4-Track Implementation**

	Pre-4-Track <i>n</i> = 14	Post-4-Track <i>n</i> = 14
<b>Program Status</b>		
Graduated	6 (43%)	3 (21%)
Terminated	7 (50%)	6 (43%)
Active	1 (7%)	5 (36%)
<b>Program Length of Stay</b>		
Graduates	643 days	579 days
Terminated	107 days	251 days

*Note.* Includes only participants who are no longer active in the program (i.e., participants who have been terminated or graduated; no active participants), and those that entered prior to February 1, 2016. Quadrants with fewer than seven participants were suppressed.  
\**p* < .05, \*\**p* < .01, \*\*\**p* < .001

### **STUDY QUESTION #3: WHAT WERE THE COSTS OF PROGRAM PARTICIPATION BEFORE AND AFTER IMPLEMENTING THE 4-TRACK MODEL?**

Program transactions for which costs were calculated in this analysis included status review hearings (including staffings), case management, drug treatment, drug tests, jail sanctions, and program fees. The costs for this study were calculated to include taxpayer costs only. All cost results provided in this report are based on fiscal 2018 dollars or were updated to fiscal 2018 using the Consumer Price Index.

#### **Program Transactions**

A drug court session, for the majority of drug courts, is one of the most staff and resource intensive program transactions. These sessions include representatives from the following agencies:

- 20th Judicial Circuit Court (Judge, Administrator);
- Osage County Prosecuting Attorney's Office (Prosecuting Attorney);
- Missouri Department of Corrections- Probation and Parole (Probation Officers);
- Missouri Alcohol Drug Assessment Consultants (Counselor, Treatment Director);
- Compass Health Network (Mental Health Liaison).

The cost of a **Court Appearance or Status Review Hearing** (the time during a session when a single program participant interacts with the judge) is calculated based on the average amount of court time (in minutes) each



participant interacts with the judge during the drug court session. This includes the direct costs for the time spent for each OGCATC team member present, the time team members spend preparing for the session, the time team members spent in staffing, the agency support costs, and jurisdictional overhead costs. Note that there are different costs for the pre-4-track and post-4-track groups as NPC obtained the time commitments for team members prior to the implementation of the 4-tracks as well as after implementation. The cost for a single OGCATC court appearance is \$208.38 per participant for the pre-4-track group and \$364.17 per participant for the post-4-track group.

**Case Management** is based on the amount of staff time dedicated to case management activities during a regular work week and is then translated into a total cost for case management per participant per day (taking staff salaries and benefits, and support and overhead costs into account).<sup>4</sup> The agencies involved in case management are the Circuit Court, Prosecuting Attorney’s Office, Probation and Parole, and Missouri Alcohol Drug Assessment Consultants, Inc. Note that there are different costs for the pre-4-track and post-4-track groups as NPC obtained the time commitments for team members prior to the implementation of the 4-tracks as well as after implementation. The daily cost of case management is \$14.15 per participant for the pre-4-track group and \$13.95 per participant for the post-4-track group.

**Treatment Services** for the majority of OGCATC participants were provided by Missouri Alcohol Drug Assessment Consultants (MADAC) starting in 2016. Prior to MADAC, the treatment provider was Pathways. The treatment costs used for this analysis were the contracted billing amounts between the Office of State Courts Administrator and Treatment Court Specialized Services Providers in each county. Each contract specifies the fixed price for each unit of service. Because total treatment costs per participant were included in the treatment dataset, there are no unit costs for treatment such as group treatment sessions or individual treatment sessions. Treatment is reported as an average cost per participant instead of unit cost per service received. (See Table 10).

**Drug Testing** is paid for by the 20<sup>th</sup> Judicial Circuit Court which utilizes Drug Court Resources Funding (state funds). Drug testing costs were obtained from the administrator. The average cost per UA test per participant is \$10.00.

**Program Fees** are paid by OGCATC participants to the Circuit Court and vary according to program phase and may be lowered if a participant is determined to be indigent. The Administrator noted that the OGCATC collects about 70% of total fees. NPC was able to obtain data on the actual amount paid by participants, so the program fee included in this cost analysis is the average amount paid by each group.

**Jail Sanctions** are provided by the Osage County Sheriff’s Office. The cost per day of jail was obtained from information found in the 2017 Osage County Budget. The cost per day of jail is \$98.96.

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<sup>4</sup> Case management includes meeting with participants, evaluations, phone calls, referring out for other help, answering questions, reviewing referrals, consulting, making community service connections, assessments, documentation, file maintenance, home/work visits, and residential referrals.



### Program Costs

Table 13 displays the unit cost per program related event (or “transaction”), the number of events and the average cost per individual for each of the OGCATC events for pre-4-track and post-4-track participants who exited the program.<sup>5</sup> The sum of these events or transactions is the total per participant cost of the OGCATC program. The table includes the average for all pre-4-track OGCATC participants ( $N = 13$ ) and for all post-4-track OGCATC participants who had exited the program ( $N=9$ ), regardless of status upon completion (that is, both graduates and non-graduates were included in the analysis). It is important to include participants who were discharged as well as those who graduated as all participants use program resources, whether they graduate or not.

**Table 13. Program Costs per Participant Pre- and Post 4-Track Implementation**

Transaction	Unit Cost	Pre-4-Track		Post-4-Track	
		Avg. # of Events per Participant	Avg. Cost per Participant	Avg. # of Events per Participant	Avg. Cost per Participant
Case Management Days	\$14.15/\$13.95	315.00	\$4,457	295.00	\$4,115
Court Appearances	\$208.38/\$364.17	30.15	\$6,283	23.22	\$8,456
Treatment <sup>a</sup>	N/A	N/A	\$2,690	N/A	\$1,658
Drug Tests	\$10.00	40.70	\$407	29.13	\$291
Jail Sanctions	\$98.96	14.23	\$1,408	18.22	\$1,803
Program Fees	N/A <sup>b</sup>	1	(\$835)	1	(\$1,279)
<b>TOTAL</b>			<b>\$14,410</b>		<b>\$15,044</b>

<sup>a</sup> Unit costs or the number of events for treatment were not included in this table due to the wide range of treatment modalities. The treatment services provided can be found in Table 10 and treatment costs by agency are displayed in Table 13. <sup>b</sup> The amount of fees actually paid varies by group, so the amount of program fees differs by column.

The unit cost multiplied by the number of events per person results in the cost per person for each transaction during the course of the program. When the costs of the transactions are summed the result is a total OGCATC program cost per participant of \$14,410 pre-4-track and \$15,044 post-4-track. The cost per graduate was \$25,397 pre-4-track and \$19,908 post-4-track. Note that the graduates cost more than the participants in general, as graduates are generally in the program longer and use more resources.

<sup>5</sup> Program participants included in the program cost analysis are those who had sufficient time to complete the program and who exited the program either through graduation or termination. Active participants were not included in the analysis as they were still using program services so did not represent the cost of the full program from entry to exit.

**Figure 1. Program Cost per Participant by Transaction**

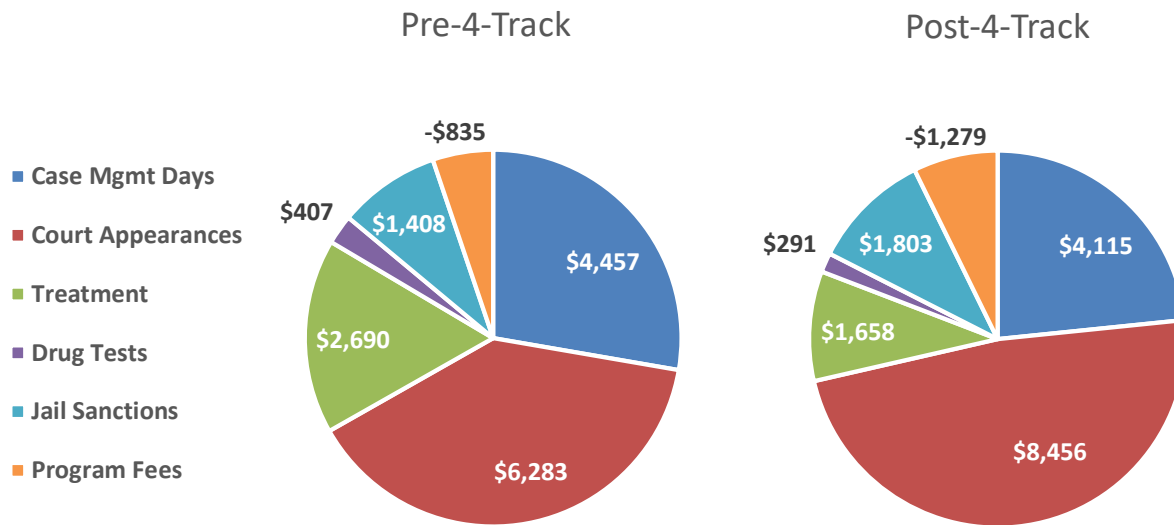


Figure 1 shows that the amount of program costs devoted to treatment decreased from pre-4-track (\$2,690) to post-4-track (\$1,658). The amount of drug testing and case management also decreased, while the amount devoted to court appearances and jail sanctions increased. Program fees paid per participant increased (from \$835 to \$1,279).

Another useful way to examine program costs is by the amount contributed by each agency involved in the program. Table 14 displays the cost per participant by agency for pre- and post-implementation groups.

**Table 14. Program Costs per Participant by Agency Pre- and Post-4-Track Implementation**

Agency	Average Cost per Person	
	Pre-4-Track	Post-4-Track
Circuit Court <sup>a</sup>	\$5,214	\$3,889
Prosecuting Attorney's Office	\$242	\$382
Department of Corrections- Probation and Parole	\$2,307	\$2,160
Missouri Alcohol Drug Assessment Consultants	\$0	\$6,768
Compass Health Network	\$5,239	\$42
Sheriff	\$1,408	\$1,803
<b>TOTAL</b>	<b>\$14,410</b>	<b>\$15,044</b>

<sup>a</sup> The program fee was included in the Circuit Court's total as participants pay the fee to the court.

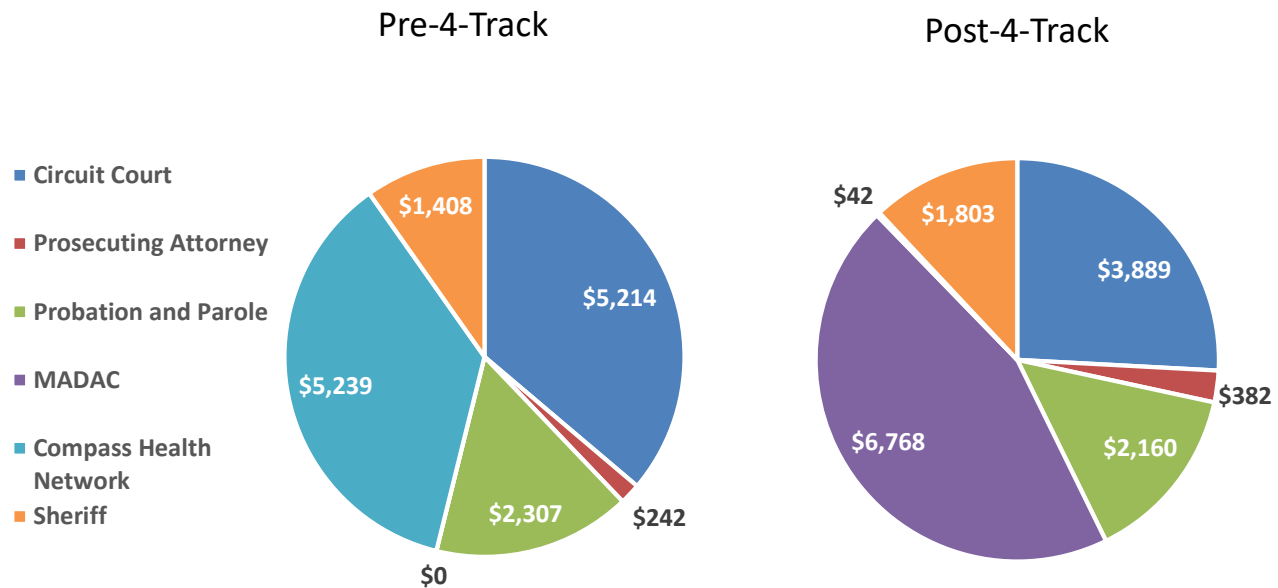
**Figure 2. Program Cost per Participant by Contributing Agency**

Figure 2 and Table 14 show that in the pre-4-track group, the bulk of program costs accrued to Compass Health Network (36%) and the Circuit Court (36%), while in the post-4-track group the majority of program costs accrued to Missouri Alcohol Drug Assessment Consultants, Inc. (45%), followed by the Circuit Court (26%).

Table 15 provides the program costs by quadrant. Similar to the discussion about services provided previously, the single individuals in Quadrants 2 and 4 may not be representative of the costs per quadrant if the program had a higher caseload.

**Table 15. Program Events: Cost per Participant by Quadrant Pre- and Post-4-Track Implementation**

Transaction Type	Pre-4-Track Q1: HR/HN N = 13	Post-4-Track				
		Q1 n = 7	Q2 n = 1	Q3 n = 0	Q4 n = 1	Total n = 9
Case Management Days	\$4,457	\$3,362	\$7,714	N/A	\$4,115	\$4,115
Court Appearances	\$6,283	\$9,727	\$5,827	N/A	\$2,185	\$8,456
Treatment	\$2,690	\$2,002	\$431	N/A	\$482	\$1,658
Drug Tests	\$407	\$383	\$20	N/A	\$10	\$291
Jail Sanctions	\$1,408	\$2,305	\$0	N/A	\$99	\$1,803
Program Fees	(\$835)	(\$1,430)	(\$960)	N/A	(\$540)	(\$1,279)
<b>TOTAL</b>	<b>\$14,410</b>	<b>\$16,349</b>	<b>\$13,032</b>	<b>N/A</b>	<b>\$6,351</b>	<b>\$15,044</b>



The only quadrant that had a sufficient number of participants both pre and post-4-track implementation for a valid cost analysis is Quadrant 1. The costs increased from \$14,410 per participant for the pre-4-track group to \$16,349 for the post-4-track group, with court appearances and jail sanctions accounting for that increase (every other program event decreased in cost from pre to post-4-track). While the number of participants in Quadrant 2 and Quadrant 4 in the post-4-track group is only one each, Table 15 shows that the total program costs are highest in Quadrant 1, lower in Quadrant 2, and lowest in Quadrant 4. Although the costs for the single participants in Quadrants 2 and 4 may not be valid, they are consistent with what would be expected in the 4-track model, with high-risk high-need participants using the majority of the resources.

Table 16 presents the costs specific to treatment services in more detail. An examination of tables 15 and 16 show that post-4-track participants use fewer of every resource than pre-4-track participants, with the exception of jail sanctions and education groups.

**Table 16. Treatment Costs: Average per Participant by Quadrant Pre- and Post-4-Track Implementation**

Treatment Services (Units)	Pre-4-Track Q1: HR/HN N = 13	Post-4-Track				
		Q1 n = 7	Q2 n = 1	Q3 n = 0	Q4 n = 1	Total n = 9
Assessment	\$41	\$17	\$0	N/A	\$125	\$27
Group Counseling	\$1,370	\$522	\$0	N/A	\$0	\$406
Individual Counseling	\$1,236	\$1,289	\$431	N/A	\$357	\$1,090
Education Groups	\$20	\$174	\$0	N/A	\$0	\$135
Medication Services	\$4	\$0	\$0	N/A	\$0	\$0
Family Therapy	\$19	\$0	\$0	N/A	\$0	\$0
<b>TOTAL</b>	<b>\$2,690</b>	<b>\$2,002</b>	<b>\$431</b>	<b>N/A</b>	<b>\$482</b>	<b>\$1,658</b>

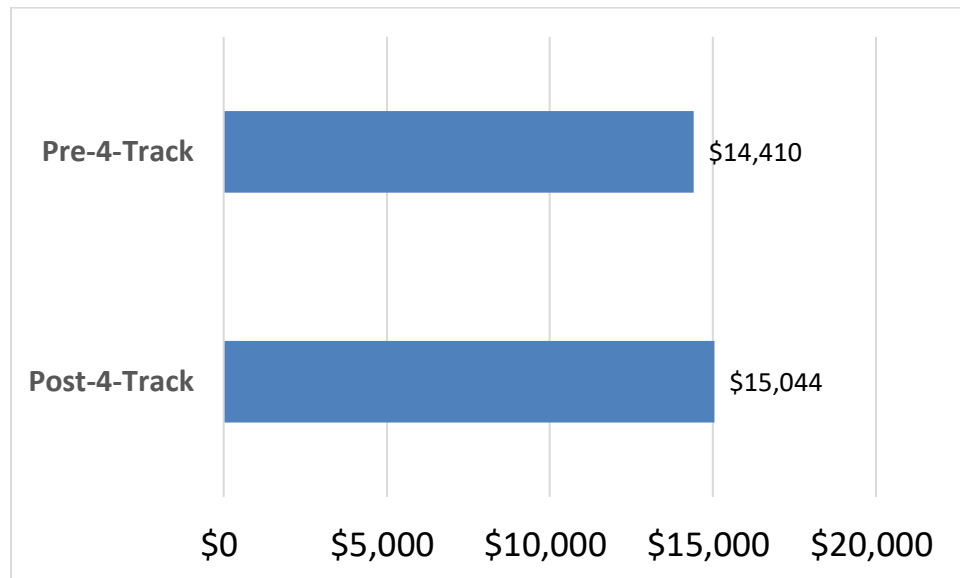
Note. Total in this table may not match with the treatment total row in Table 15 due to rounding.

Total treatment costs decreased from pre-4-track to post-4-track Quadrant 1 from \$2,690 to \$2,002. The use of individual counseling and education groups increased from pre-4-track to post-4-track, but the use of every other treatment service decreased.

**STUDY QUESTION #4: WERE THERE ANY COST EFFICIENCIES DUE TO THE IMPLEMENTATION OF THE 4-TRACK MODEL?**

Figure 3 illustrates the program costs per quadrant pre- and post-4-track implementation.

**Figure 3. Total Program Costs per Participant**



Program costs are \$634 higher post-4-track implementation than pre-4-track implementation. This is a negligible cost difference, therefore, there does not appear to be any cost efficiency in implementing the 4-track model for the OGCATC program. However, it is also not a large additional expense. It is possible that if the program gets larger and more individuals enter the program in all quadrants, some efficiencies will appear. In addition, the slightly higher program costs after the implementation of the 4-track model tells us nothing about whether or not the program is more effective—an outcome analysis is required for that determination. Outcome study findings from two other 4-track sites in Missouri (Greene and Jackson counties) show substantial improvements and cost savings in participant outcomes after implementing the 4-track model. Therefore, even if the model is not more cost efficient to implement, it may be worth the expense in improved participant outcomes, including reduced recidivism and the corresponding improvement in public safety.



## SUMMARY AND POLICY IMPLICATIONS

In October 2014, the Office of State Courts Administrator (OSCA) in Missouri, in partnership with NPC Research, received a grant from the Bureau of Justice Assistance, to perform process, outcome and cost evaluations of two drug courts operating in Missouri that are using the 4-track model and to assist in the expansion of this model into four additional Missouri drug courts. The Missouri Drug Courts Coordinating Commission (DCCC) was interested in the costs associated with implementing this model and subsequently contracted with NPC to evaluate the costs and potential benefits in two of the expansion sites, Boone and Osage-Gasconade counties.

The Osage-Gasconade Counties Adult Treatment Court (OGCATC) was established in July 2009 to address the substance use disorders and the associated lifestyle of felony offenders by providing a structured program designed to hold the offenders accountable, help the offenders gain control over their substance use disorder, and assure that they develop responsible living skills.

In July 2012 the OGCATC began using the RANT to determine participant risk and needs and in June 2015, the OGCATC began to place participants into tracks based on RANT scores with the objective to use resources more efficiently by targeting the specific risks and needs of the participants. The pre-4-track implementation sample selected for the study was the population of individuals who entered the program from May 2012 to October 2014 ( $N = 14$ ). The post-4-track implementation sample was the population of individuals who entered the program from July 2015 to June 2017 ( $N = 14$ ). This study uses an intent-to-treat design so all participants who entered the program, regardless of status at exit (graduated or unsuccessfully discharged), are included in the analysis.

A review of the program process performed by OSCA found that the OGCATC follows many of the essential guidelines and best practices within the 10 Key Components of Drug Courts and the Best Practice Standards (NADCP, 2013, 2015).

The participants in each quadrant are placed in different tracks and have different requirements designed to match the participants' risks and needs. The OGCATC policy and procedure manual lists the requirements for each of the four tracks. The manual demonstrates the OGCATC did plan program requirements and service provision to match the risk and need levels of the participants that fell in each quadrant.

To determine whether the OGCATC was adjusting program requirements and services provided to participants in different tracks in practice in addition to intent as expressed in the policy and procedure manual, we examined administrative data on treatment services received and program activities for each participant.

The administrative data showed that, after the implementation of the 4-track model, the demographics of the participant population shifted slightly. The proportion of men in the program decreased from 86% to 43%;<sup>6</sup> however, all participants in both time periods were White. There were no differences in age

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<sup>6</sup> Two by two chi-square comparing participant gender and 4-track implementation status:  $\chi^2(1, N = 28) = 5.60, p < .05$ .



before or after 4-track implementation. On average, program participants at both time points had an average of just over two arrests in the 2 years prior to program entry.

The key finding from the administrative data was that the majority of the participants (11 out of the total caseload of 14) were in Q1 (HR/HN). Two were in Q2 (LR/HN) and one was in Q4 (LR/LN). The overall small sample size of 14 limited the ability to perform any valid analyses on the data, and the very small number of participants in each quadrant (none in Q3) made it impossible to perform any analyses to determine whether participants were receiving services differentially based on risk and need levels.

However, it was possible to calculate graduation rates and the costs of program requirements and services for the 14 individuals who participated in the OGCATC pre-4-track implementation and post-4-track implementation.

Since the minimum amount of time to complete the OGATC is 18 months, only participants who entered the program prior to February 1, 2016 (1.5 years before data extraction) were included in the overall graduation rates. Pre-track graduation rate was 46% or six graduates out of 13 participants with complete status information. Post-4-track graduation rate was 60% or three out of five participants with complete status information and entering at least 18 months prior to data extraction. The graduation rate for all participants pre-4-track implementation was 46% compared with 60% post-implementation, which was not significantly different (probably due to the small sample sizes), but is promising.

When the costs of the program transactions (court sessions, drug tests, case management, jail sanctions, and treatment) are summed the result is a total OGCATC program cost per participant (regardless of status at program exit) of \$14,410 pre-4-track and \$15,044 post-4-track. The cost per graduate was \$25,397 pre-4-track and \$19,908 post-4-track. When the costs are examined by agency, we found that the majority of resources invested in the program can be attributed to the court and to treatment. Because the main purpose of drug courts is to combine the judicial system with treatment system to address criminal behavior influenced by drug use, it makes sense that the majority of resources used in program implementation come from the court and from treatment.

The cost per graduate decreased from pre-4-track to post-4-track, showing the potential for some cost efficiencies in implementing the 4-track model. Further, because the caseload is so small, the cost may be higher due to all resources (including staff time) being concentrated on a few individuals. If the program caseload increased, there may be some economy of scale that could be realized by treating more individuals without increasing the number of staff members.

Overall, because of the small sample size, it is not possible to come to any firm conclusions about the quality of the OGCATC implementation of the 4-track model, any impact on participant success rates, or if any cost efficiencies were realized. However, the study findings are promising, as the results appear to be trending in a positive direction on all measures.



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## **APPENDIX A: STATISTICAL DATA ANALYSES METHODS**



Once all data were gathered on the study participants, researchers cleaned and moved the data into SPSS 23.0 for statistical analysis. The analyses used to answer specific questions are described below.

### **RESEARCH QUESTION #1: DID THE PROGRAM OPERATE DIFFERENTLY BEFORE AND AFTER THE IMPLEMENTATION OF THE 4-TRACK MODEL?**

#### ***1a. Did the program requirements and provision of services change from pre-implementation to post implementation?)***

Independent sample *t* tests were performed to compare the mean number of program events (e.g., drug tests administered, treatment sessions attended) for all OGCATC participants who had exited the program (i.e., no longer active in the program). Groups were based on whether the participant was in the pre-4-track implementation or the post-4-track implementation group.

#### ***1b. Did the program provide services differently in the different quadrants?***

Independent sample *t* tests and two way analysis of variance (ANOVA) were performed to compare the mean number of program events (e.g., drug tests administered, treatment sessions attended) for all OGCATC participants who had exited the program (i.e., no longer active in the program). The two independent variables included quadrant and 4-track implementation status. Post hoc analyses were conducted to assess pairwise comparisons for any significant results.

### **RESEARCH QUESTION #2: DID GRADUATION RATES DIFFER BEFORE AND AFTER 4-TRACK IMPLEMENTATION?**

Whether a program is bringing its participants to completion in the intended time frame is measured by program graduation (successful completion) rates, and by the amount of time participants spent in the program. The program graduation rate is the percentage of participants who graduated from the program out of the total group of participants who started during a specified time period and who have all left the program either by graduating or being unsuccessfully discharged (that is, none of the group is still active and all have had an equal chance to graduate). The average graduation rate (for participants entering between January 2012 and June 2016, to allow for enough time to complete the program) is compared by 4-track implementation status, by quadrant, and to the national average for OGCATC graduation rates (discussed qualitatively). Crosstabs and chi-square analyses were run to examine differences in graduation rates among quadrants and 4-track implementation status. To control for Type I error when examining differences between quadrants, a Bonferroni correction was applied.

To measure whether the program is graduating participants in its expected time frame, the average amount of time in the program was calculated for participants who had enrolled in the OGCATC program between January 2012 and June 2016, by 4-track implementation status and have been successfully discharged from the program. The average length of stay for graduates and for all participants was compared to the intended time to program completion, and the differences are discussed qualitatively.